

2008

## **Risk Factors and the Well-Being of Children with Incarcerated Parents: A n Examination of Moderation and Mediation Processes**

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<https://dx.doi.org/doi:10.21220/s2-tspd-q558>

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**Risk Factors and the Well-Being of Children with Incarcerated Parents:  
An Examination of Moderation and Mediation Processes**

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**A Thesis presented to the Graduate Faculty  
of the College of William and Mary in Candidacy for the Degree of  
Master of Arts**

**Psychology Department**

**The College of William and Mary  
August, 2008**

## APPROVAL PAGE

This Thesis is submitted in partial fulfillment of  
the requirements for the degree of

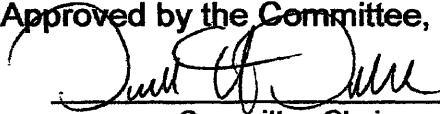
Master of Arts



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Laura C. Wilson

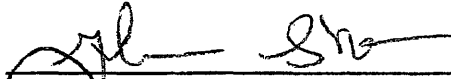
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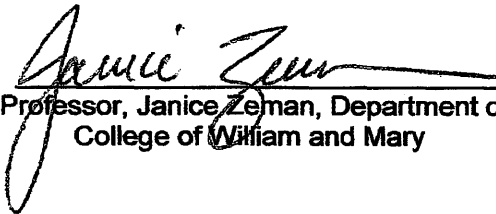
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## ABSTRACT PAGE

The current study examined moderation and mediation processes between risk factors and negative psychological outcomes in children of incarcerated parents. In a sample of 99 incarcerated parents, with 110 school-age and adolescent children, several key findings emerged: (i) Risk factors related to parental incarceration (e.g., witnessing arrest) were positively correlated with maladjustment (e.g., externalizing behaviors). (ii) Children's school problems mediated the relation between witnessing parental sentencing and school-age children's externalizing behaviors. (iii) School problems moderated the relation between witnessing parental arrest and adolescents' externalizing behaviors, and (iv) emotion dysregulation moderated the relation between parental criminal activity and adolescents' delinquent behaviors. These findings suggest that school problems and emotion dysregulation affect the well-being of children with incarcerated parents and should be further explored as possible areas of intervention.

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## Acknowledgements

I would like to take this opportunity to extend my deepest gratitude to my advisor, Dr. Danielle Dallaire, for her guidance and support over the past two years. I would also like to thank Drs. Glenn Shean and Janice Zeman for their helpful comments during this process. I would like to acknowledge the members of the EPIC Lab for all of their hard work and dedication. Finally, I would also like to thank my family, friends, and classmates, whose unconditional support made this accomplishment possible.

## **Risk Factors and the Well-Being of Children with Incarcerated Parents:**

### **An Examination of Moderation and Mediation Processes**

Recent estimates suggest that parental incarceration affects one in every 40 children in the U.S. (National Resource Center on Children and Families of the Incarcerated, 2007). In 1999, nearly 1.5 million children under the age of 18 had at least one parent in jail or prison (Mumola, 2000); this is three times the number of affected children eight years earlier. Children with incarcerated parents are highly vulnerable to maladjustment and more likely to be delinquent, use drugs, experience early pregnancy, drop out of school, and exhibit emotional problems (Murray, 2005; Myers, Smarsh, Amlund-Hagen, & Kennon, 1999; Trice & Brewster, 2004) than their peers whose parents are not incarcerated. Although these negative outcomes in children with incarcerated parents have been linked to certain incarceration-related risk factors, like being separated from a caregiver or siblings, the presence of protective factors, like warmth from caregivers, may explain why some children demonstrate greater well-being in spite of parental incarceration (Mackintosh, Myers, & Kennon, 2006). The majority of research in this area, however, has failed to appropriately distinguish the effects of parental incarceration from other influences (Murray, 2005). In the current study, literature will be reviewed which pertains to moderation and mediation processes which may affect the relation between children's exposure to risk factors and negative outcomes for children with incarcerated parents.

Children with incarcerated parents are more likely to experience several acute life stressors (e.g., disruptions in living situations, separation from siblings; Mumola, 2000), yet many children with incarcerated parents are resilient in the face of such stressors and

do not demonstrate poor adjustment as a result. Mackintosh and colleagues (2006) suggest that some children with incarcerated parents show fewer negative outcomes, such as externalizing and internalizing behaviors, when they are also exposed to protective factors like social support and a sense of acceptance from their caregivers. Trice and Brewster (2004) found that in a sample of 58 children with incarcerated mothers, children who lived with family members during their mothers' incarcerations were less likely to drop out of school than children placed in foster care with a 31% rate of drop out in the group placed with family members, compared to a 75% rate of dropout in the group placed in foster care. Therefore social support, home and caregiver transitions, and perhaps even child placement during parental incarceration may account for why some children with incarcerated parents are resilient and do not demonstrate negative outcomes (e.g., dropping out of school) whereas others are more vulnerable.

In addition to these protective factors, other important protective factors which are yet-to-be examined in this population of children and families are children's emotional competency and emotion regulation skills. Schultz and colleagues (2001) identified children's emotional competence as a protective factor for at-risk children because it reduced the probability that the participants in a high-risk sample of economically disadvantaged children would exhibit internalizing and externalizing behaviors. Though children with incarcerated parents face several acute stressors which place them at risk for maladaptive outcomes, it is likely that protective factors such as emotion regulation skills attenuate the relation between risks and maladjustment.

Children with incarcerated parents may demonstrate an array of both positive and negative outcomes (multifinality), and there are numerous pathways to the same



outcomes (equifinality; Mackintosh et al., 2006). To explain multifinality and equifinality in this population of children and families, Murray (2005) suggests that selection effects, direct effects, mediating variables, and moderating variables should be included in explanatory models examining the effects of parental incarceration on children. Selection effects include preexisting confounding variables, such as chronic parental unemployment, and may affect the relation between risk and outcome variables. Arditti and Few (2006) found that incarcerated parents often have a long history of criminal activity, problematic behaviors, drug and alcohol use, and poverty before their current offense. Children of inmates are often at risk prior to their parents' incarcerations because of the high frequency of poverty and low education (Myers et al., 1999), and thus the relation between the specific risk factor of parental incarceration and a negative outcome variable may be influenced by selection effects.

Most research examining parental incarceration focuses on what Murray (2005) would refer to as direct effects, or variables that directly cause the outcome variable of interest. For example, Murray (2005) suggests that the experience of separation during parental incarceration leads to maladjustment in children. Thus, the experience of loss during the incarceration results in a direct negative effect on the child's psychological well-being. However, researchers examining direct effects have largely failed to account for selection effects, like parental substance abuse and poverty, in their designs. The direct effects of parental incarceration on children may have been over-estimated because researchers have not yet examined the role of selection effects in determining child outcomes.

Past research has been largely inconclusive with regards to fully explaining the processes related to both positive and negative outcomes in children with incarcerated parents (Murray, 2005). Mediating variables are causal mechanisms which explain the relation between a predictor and outcome variable. For example, many children experience caregiver and housing changes during parental incarceration. Home and caregiver transitions may be the mediating variables that cause the apparent relation between the predictor (e.g., parental incarceration) and outcome (e.g., maladjustment) variables. Moderating variables, in contrast, affect the direction and/or strength of the relation between the predictor and outcome variables. For example, children of different genders and stages of development may respond differently to parental incarceration. For example, Kinner and colleagues (2007) found that, based on maternal reports of adolescents with incarcerated parents, boys exhibited significantly higher rates of externalizing behaviors than girls. However, mothers reported significantly higher rates of internalizing problems in girls than boys (Kinner et al., 2007).

Mediating variables, such as the experience of caregiver and home transitions, and moderating variables, like a child's age and gender, can be either a risk or protective factor depending on the outcome variable examined, and ultimately may account for why some children experiencing parental incarceration demonstrate better outcomes and adjustment than others (Murray, 2005). For example, Hanlon and colleagues (2005) found that incarcerated mothers reported fewer delinquent behaviors and school problems in their female children than their male children. Thus, gender may act as a risk factor for boys and as a protective factor for girls when examining outcomes in children with incarcerated parents.

To identify and examine the mechanisms, or interactions of variables associated with varying outcomes in children with incarcerated parents, it may be informative to draw upon models established in the divorce literature because of the similarities between the experience of parental divorce and the experience of parental incarceration. Divorce, like parental incarceration, is a process with varying outcomes for people because of mediating and moderating processes (Hetherington & Stanley-Hagan, 1999). Divorce is one step in a long process of family transitions. In addition, children vary in the number of and level of risk and protective factors in their lives. Though divorce is a stressful event, the interaction of numerous factors (i.e., selection effects, direct effects, and mediating and moderating variables) may account for diverse developmental trajectories. Amato's (2000) Divorce Stress-Adjustment Perspective identifies divorce as a process and offers insight into establishing a similar model to account for the effects of parental incarceration. To better understand children's adjustment to divorce, Amato examines mediator and moderator variables. During and immediately after a divorce, there is a series of events which can potentially affect an individual's behaviors and emotions. Amato identifies these events as mediators or short-term outcomes that have long-term consequences. For example, conflict between divorced parents over child support would be an event that would likely have long-term negative consequences for the child, such as behavior problems (Hetherington, 1999).

Moderators are protective factors that introduce variability and lessen the impact of risk factors (e.g., self-esteem, popularity). Hetherington (1989) found that when children experience parental marital transitions, children's high self-esteem and popularity with peers can act as protective factors against maladjustment. Similar to

parental incarceration, divorce is a stressful event that has diverse developmental outcomes depending on selection effects, direct effects, and mediating and moderating variables. Researchers examining parental incarceration may draw from the divorce literature and examine the effects of parental incarceration on children as a process of mediating and moderating factors.

By drawing upon models established in the divorce literature, the current study will examine moderation and mediation processes associated with outcomes in children with incarcerated parents. Previous research by Mackintosh, Myers, and Kennon (2006), Mumola (2000), and Poehlmann (2005) has identified several prominent selection effects, and mediating and moderating variables, which may be risk factors in the lives of children with incarcerated parents. The current study endeavors to disentangle the direct effect of parental incarceration from selection, mediating, and moderating risk variables. In the following sections, relevant research relating to selection effects and potential mediating and/or moderating variables is discussed.

### *Selection Effects*

Children with incarcerated parents may experience numerous stressful events, including witnessing parental criminal activities, arrest, and/or sentencing (Myers et al., 1999). Often long before their parents' arrest, children of inmates experience parental substance abuse and criminal activities (Myers et al., 1999). Mumola (2000) found that more than half (58%) of incarcerated parents reported using drugs the month before their arrest. In addition to being present during criminal activity, Johnston (1991) suggests that one in five children is present to witness their mother's arrest. This event is often terrifying for children because the parent is led away in handcuffs and is not allowed to

explain the situation or console the child (Sack & Seidler, 1978). Miller (2006) suggests that this experience may increase the child's risk for mental health issues, cause them to distrust law enforcement, and result in reoccurring nightmares. Through interviews conducted with 30 children of incarcerated mothers, Jose-Kampfner (1995) found that children who witnessed their mothers' arrest reported experiencing nightmares and flashbacks of the arrest event. Traumatic events, such as witnessing parental criminal activity, arrest, and sentencing, are confounding selection effects that are associated with negative outcomes in children (e.g., nightmares) prior to parental incarceration.

In the current study, children's experience of incarceration-related risk factors will be considered selection effects that will be associated with greater maladjustment. Witnessing parental criminal activity, arrest, and sentencing are traumatic events that many children experience prior to parental incarceration that may influence the relation between risk and outcome variables in this population. For example, children who are more likely to experience traumatic experiences, such as witnessing parental criminal activity, may be at greater for overall risk of maladjustment because of additional environmental risk factors (e.g., exposure to poor parenting). The presence of pre-existing selection effects, such as witnessing parental criminal activity, may place children of inmates at risk prior to parental incarceration. In the current study, comparisons will be made between children whose parents report that their children experienced these events to parents who report that their children did not experience these events. Thus, children's experience of these events will be examined separately from the direct effects of parental incarceration.

### *Mediating and Moderating Variables*

*School problems.* In the current study, school problems will be examined as a variable that affects the relation between incarceration-related risk factors and child outcomes. Children with incarcerated parents, especially those with incarcerated mothers, are at increased risk of school failure and school related problems (Myers et al., 1999; Murray & Farrington, 2005). In a sample of 36 children, between the ages of five to 16 years old, caregivers reported that 30% of the children had experienced school or learning problems (Simmons, 2000). In a study examining the effects of paternal incarceration, Lowenstein (1986) collected information regarding the school performance of 302 children after their fathers were incarcerated. Based on information collected from the children's mothers, Lowenstein (1986) found that the children's school work deteriorated after paternal incarceration. In an investigation of 58 adolescents with incarcerated mothers, Trice and Brewster (2004) compared the school performance of those children with an incarcerated mother to their best friends. They found that children of incarcerated mothers were significantly more likely than their best friends to drop out of school, experience suspension, fail classes, and have extended absences from school. In a sample of 88 adolescents with incarcerated mothers, Hanlon and colleagues (2005) found that 45% of the adolescents reported little or no interest in school, 33% had failed a grade, and 27% had attended special education classes. In addition, 83% reported experiencing a problem at school (e.g., school failure, disciplinary sanction).

Overall, children with incarcerated parents are at increased risk of school problems and failure. Therefore, based on the presented literature it is hypothesized that school problems will affect the relation between the experience of incarceration-related

risk factors and negative outcomes such that school problems will place children at greater risk of negative outcomes.

*Emotion regulation.* Children's emotion regulation skills will be examined as a factor that affects the relation between incarceration-related risk factors and child outcomes. Emotion regulation involves "processes used to manage and change, if, when, and how one experiences emotions and emotion-related motivational and physiological states, as well as how emotions are expressed behaviorally" (Eisenberg, Hofer, & Vaughan, p. 288). It consists of several systems including internal systems (i.e., cognitive), behavioral elements (i.e., facial expressions), and external and social components (i.e., cultural values; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). The ability to regulate emotions is based on early social and environmental interactions (e.g., child-caregiver relationships), with parents or guardians playing one of the most important roles in socialization. A child's ability to regulate emotions increases from middle childhood to adolescence (Zeman & Garber, 1996), with adolescents gaining a heightened awareness of the consequences of specific emotions and how they affect interpersonal relationships. This awareness influences children's decisions regarding the expression of emotions in specific contexts and around certain individuals. By adolescence, children's expressive behavior is more differentiated and based on the demands of social situations.

Because of the detrimental social and environmental interactions many children with incarcerated parents experience (e.g., separation from parent or sibling, caregiver transitions, witnessing parental criminal activity), emotional difficulties are an area of concern for children with incarcerated parents. Although poor emotion regulation is a risk

factor for negative outcomes (e.g., psychopathology; Zeman et al., 2006), appropriate emotion regulation can also serve as a protective factor against psychopathology (Schultz et al., 2001). Research suggests that emotion regulation acts as a protective factor against the negative effects associated with intense emotional situations (Eisenberg, Fabes, & Guthrie, 1996; Gottman & DeClaire, 1997). Schultz and colleagues (2001) found that emotion regulation reduces the likelihood that economically disadvantaged children experience internalizing and externalizing symptomatology. Therefore, emotion regulation could prove to be an important factor to consider when examining the mechanisms associated with outcomes in children experiencing parental incarceration because of its potential as both a risk and protective factor. In the current study, appropriate analyses will be performed to assess the moderating and mediating effect of emotion dysregulation on the relation between incarceration-related risk factors and well-being.

*Children's developmental stage and gender.* The incarceration-related risk factors and negative outcomes associated with parental incarceration may differ by the child's developmental stage and/or gender; thus the results of the current study will be examined from a developmental perspective. Young children between the ages of two and six years old are the most likely to witness parental criminal activity and/or arrest because they are too young to be at school (Myers et al., 1999). Johnston (1991) suggests that half of the children present for maternal arrest are younger than seven years old and in their mother's primary care. When studying the effects of parental incarceration on infants and young children, attachment is one of the major concerns (Myers et al., 1999; Poehlmann, 2005). Existing attachment norms suggest that the rate of children demonstrating



disorganized attachment differs in high and low risk samples (Cassidy et al., 2007).

Cassidy and colleagues (2007) suggest that, on average, 50% of high risk samples demonstrate a disorganized attachment style, whereas 15% of low risk samples demonstrate this attachment style.

When examining the effects of parental incarceration on school-age and adolescent children, researchers often focus on children's behavioral problems and peer relationships (Parke & Clarke-Stewart, 2002). As children develop from middle childhood into adolescence, they are in the process of developing self-identity and autonomy, as well as developing new peer groups (Johnston, 1995). Adolescents, in comparison to younger children, may be more susceptible to gang-related activities and delinquent activities. Because of parental incarceration, adolescents often feel they do not fit in with "good kids" and feel drawn to delinquent peer groups, such as gangs. Membership in delinquent peer groups may be associated with an increased rate of school drop out, theft, lying, and violence. For example, Myers and colleagues (1999) found that children with incarcerated mothers were three times more likely to drop out of school than their peers. They were also more likely to exhibit delinquency and engage in delinquent behaviors (e.g., lying, stealing). Adolescents may also be affected differently by parental incarceration because they are older and have likely been exposed to a greater number of traumatic events over time (e.g., previous parental incarcerations; Phillips & Harm, 1997). To be sensitive to developmental differences, analyses will be examined from a developmental perspective, with participants' children assigned into school-age (6-11 year old) and adolescent (12-17 years old) age groups.

Gender, like age, is another factor that may affect how children with incarcerated parents adjust to stressors (Murray, 2005). Kinner and colleagues (2007), in a longitudinal study, examined the effects of child gender on the outcomes of children with incarcerated parents. Based on maternal reports of adolescents with incarcerated parents, boys exhibited significantly higher rates of externalizing behaviors than girls. However, girls exhibited significantly higher rates of internalizing problems than boys. Past developmental research has linked these gender differences to differences in interpersonal relationships and aggression (Leadbeater, Blatt, & Quinlan, 1995). For example, girls' greater sensitivity to interpersonal conflict places them at higher risk of internalizing behaviors than boys. On the other hand, society's tendency to socialize boys to be assertive and less empathic has been suggested as a possible cause for increased externalizing behaviors in boys (Leadbeater et al., 1995). Although it has been suggested that the effects of parental incarceration may vary as a function of child gender, few studies have thoroughly examined the frequency or cause of these gender differences (Miller, 2006). In the current study, child gender differences will be examined as well as child by parent gender interaction effects (see below).

In addition to examining differences based on characteristics of the affected children (e.g., gender), characteristics of the incarcerated parent, such as their gender, may affect the children's outcomes. More specifically, maternal incarceration may have more detrimental effects than paternal incarceration because of caregiver transitions, separation from siblings, and the disruption of attachment relationships. Myers and colleagues (1999) suggest that children of incarcerated mothers are at greater risk because maternal incarceration is more likely to disrupt the family. Maternal incarceration is more

likely than paternal incarceration to lead to the loss of the primary caregiver, resulting in children living with other relatives or foster homes as well as possible separation from siblings (Smith, Krisman, Strozier, & Marley, 2004). In addition, maternal incarceration may be more detrimental to children than paternal incarceration because of increased risk of disrupted, disorganized, and insecure attachment relationships with their mothers or caregivers. Poehlmann (2005) found that in a sample of 53 children experiencing maternal incarcerations, ages 2 to 7, 63% were classified as insecurely attached. Children classified as securely attached in Poehlmann's sample were more likely to have more stable caregiver relationships. Children with insecure infant-mother attachment relationships are at heightened risk for greater internalizing and externalizing behaviors during preschool (McCartney, Owen, Booth, Clark-Stewart, & Vandell, 2004).

The experience of stressful events associated with maternal incarceration (e.g., separation from primary caregiver or siblings) likely damages the infant-parent attachment relationship and may place children at greater risk of negative outcomes, such as future incarceration. For example, Dallaire (2007) found that incarcerated mothers were 2.5 times more likely to report that their adult children had been incarcerated than incarcerated fathers. In the current study, consideration will be given to the gender of the incarcerated parent and whether, in comparison to paternal incarceration, maternal incarceration is associated with greater incarceration-related risks and great child maladjustment.

### *The Current Study*

Although children of incarcerated parents are at heightened risk of maladjustment, researchers have failed to identify the specific pathways associated with these outcomes

and adequately account for selection effects, and mediating and moderating processes (Murray, 2005). Given the array of negative outcomes for which children with incarcerated parents are at risk and the potential impact on society, additional research in this domain is sorely needed. In the current study, moderation and mediation processes associated with negative outcomes, such as externalizing and delinquent behaviors, will be explored in an attempt to further understand the patterns of multifinality and equifinality observed in children with incarcerated parents.

The proposed moderation and mediation models will be examined using the techniques outlined by Baron and Kenny (1986). The moderation model (see Figure 1) will be examined by first establishing a link between incarceration-related risk factors and child outcomes (Path A), then demonstrating a link between the moderating factors and child outcomes (Path B), and finally demonstrating a relation between the interaction term and outcomes variables (Path C). To demonstrate moderation, the main effects (Path A and B) do not have to be significant; only a significant interaction term (Path C) is required for moderation. The mediation model (see Figure 2) will be examined by first establishing a link between the incarceration-related risk factors and child outcomes (Path  $A_0$ ), then demonstrating a link between the incarceration-related risk factors and the mediating factors (Path B). Next a link between the mediating factors and child outcomes will be established (Path C) and then, after accounting for Paths B and C, mediation will be established by reexamining the link between the incarceration-related risks and child outcomes (Path  $A_1$ ).

The following three hypotheses are tested in the current study:

Hypothesis 1: The presence of the parent-reported incarceration-related risk factors, as well as school problems, emotion dysregulation, delinquency and externalizing behaviors, will significantly differ based on the gender of child and the gender of the incarcerated parent. With regards to children's gender, incarcerated parents of boys will report significantly more delinquency and externalizing behaviors than incarcerated parents of girls. With regards to parent gender, incarcerated mothers will report significantly more incarceration-related risk factors, school problems, emotion dysregulation, delinquency, and externalizing behaviors than incarcerated fathers.

Hypothesis 2: The presence of incarceration-related risk factors will be positively associated with greater school problems, emotion dysregulation, externalizing behaviors, and delinquent outcomes.

Hypothesis 3: Emotion dysregulation and school problems will either moderate or mediate the relation between incarceration-related risk factors, and externalizing and delinquency behaviors.

## Method

### *Participants*

Data were collected from 99 inmates, whose mean age was 37.1 years ( $SD = 6.9$  years), at a low-security county jail in a mid-sized southern city. The incarcerated parents included 50 men and 49 women who were recruited through their participation in a substance abuse rehabilitation program as part of their sentence. Seventy-five percent of the participants indicated they had been incarcerated at least once prior to the current incarceration. Forty-two percent of the incarcerated parents indicated they were

Caucasian, 55% reported being African American, and 4% indicated “other.” Twenty-eight percent of the participants did not complete high school, 48% reported receiving a high school diploma or GED, and 24% reported some post-high school education. The majority of participants were currently incarcerated for petty crimes, such as drug or alcohol related offenses (22%), probation violations (20%), failure to pay child support (5%) or other misdemeanor charges (53%). On average, the participants reported being incarcerated 140 days at the time of the interview.

To qualify for the study, all participants had to have at least one school-age or adolescent child (parents reported on average 3.1 children). In total, the inmates were parents of 263 children whose average age was 11.8 ( $SD = 6.6$ ). For the purposes of the current study, only data regarding school-age children (6 - 11 years old) and adolescents (12 - 17 years old) were used. If a parent had more than one child in either the school-age or adolescent group, then only data from the oldest child from each age group were included in this study. Twenty parents (20%) in the current study had a child in both the school-age and adolescent age groups. Ultimately, the current study included parents’ reports of their 57 school-age children (29 males; 25 African American) and 53 adolescent children (26 males; 35 African American). Thirty-five percent of the incarcerated parents reported that their children visited at least once every three months, 66% reported that they spoke to their children on the phone at least once every three months, and 75% reported communicating with their children by mail at least once every three months. Fifty percent of incarcerated parents reported that their children were currently being cared for by their other biological parent, 17% were being cared for by their grandparent(s), and 33% were being cared for by another relative or family friend.

## *Measures*

*Incarceration-related risk factors.* Basic demographic information about the participants (i.e., incarcerated parents) and their school-age and adolescent children was collected through an open-ended interview with the incarcerated parent. Incarceration-related risk factors were also assessed during the open-ended interview (see Appendix A). Inmates reported whether their child witnessed their (i) arrest, (ii) sentencing, and/or (iii) criminal activity. Parents responded either “yes” or “no” when asked if any of the three events had occurred.

*Emotion dysregulation.* Parent-reports of children’s emotion regulation were assessed with the How I Feel (HIF) questionnaire (see Appendix B; Walden, Harris, & Catron, 2003). The HIF parent version consists of 30-items assessing emotion frequency (e.g., “my child felt sad very often”), intensity (e.g., “when my child felt sad, the feelings were very powerful”), and control (e.g., “when my child felt sad, s/he could control or change how sad they felt”) for positive (e.g., happy, excited) and negative (e.g., scared, mad, sad) emotions. Parents rated on a scale from 1 (not at all true) to 5 (very true) how true each statement was about their child over the last three months. The 10 items which constitute the control of positive and negative emotions were recoded and summed to create an Emotion Dysregulation score, such that higher scores correspond with poorer emotion regulation, or dysregulation. Walden and colleagues report this instrument has demonstrated reliability and validity in a sample of children (grades three through six) and their parents with alphas for the emotional control subscale ranging from .84 - .86 (Walden et al., 2003). In the current study, the emotion dysregulation measure had an alpha of .91.

*School problems.* Children's school problems were assessed by asking the parent to report whether their child had ever been (i) held back a year in school, (ii) suspended from school, (iii) expelled from school, (iv) if they were currently failing any classes in school, and (v) if they had a diagnosed learning disability (See Appendix C). Parents responded either "yes" (1) or "no" (0) to the list of events and their responses were summed to create a school problems summary score for their child(ren), with higher scores indicating more parent-reported school problems.

*Externalizing behaviors.* Externalizing behaviors were assessed with the Externalizing behavior subscale of the Child Behavior Checklist (CBCL; see Appendix D; Achenbach & Rescorla, 2001), which was completed by the incarcerated parents. The CBCL is one of the most commonly used rating scales of parent-reported child symptomatology. The participants rated how often their child engaged in 35 rule-breaking and aggressive behaviors during the previous six months on a 3-point scale (0 = never; 1 = sometimes; 2 = often or always). An Externalizing Behavior T-score was computed based on the scoring protocol provided by Achenbach and Rescorla (2001) with higher scores demonstrating a greater propensity to externalize. T-scores were examined because they are standardized scores which take into account gender and age differences. The borderline-clinical range is defined as spanning from T-scores of 60 to 63, with T-scores above 63 being identified as in the clinical range.

In the current sample, 12% of school-age children and 17% of adolescent children exhibited borderline-clinical range parent-reported externalizing behaviors in the past six months. In addition, 23% of school-age children and 30% of adolescent children exhibited clinical level externalizing behaviors based on parent-report. In a normative



sample collected by Achenbach and Rescorla (2001), 16% of children scored in the borderline clinical or clinical range of externalizing behaviors, compared to 35% of school-age children and 47% of adolescent children in the current study. Therefore, the results indicate high levels of externalizing behaviors in the current sample of children and adolescents with incarcerated parents.

*Delinquent behaviors.* Children's delinquent behaviors were assessed with a questionnaire based on the Risky Behavior Protocol (RBP; see Appendix E; Conger & Elder, 1994). This questionnaire was only administered to parents of adolescent children. The RBP questionnaire contains 24 items worded for parent-reports of their adolescents' delinquent behaviors. Parents indicated on a scale from 0 (never) to 6 (six or more times) how many times their adolescent child had done any of the delinquent activities (e.g., purposely set a fire in a building) in the last 30 days. Responses were summed to create a total delinquency behavior score for adolescent children. This instrument has been used in previous studies and has demonstrated adequate validity. In a sample of mothers reporting on the delinquent behaviors of their 12 year old adolescents, the items retained an alpha coefficient of .71 (NICHD Study of Early Child Care and Youth Development, 2008).

### *Procedure*

Institutional Review Board approval was obtained from the Human Subjects Research Committee at The College of William and Mary and approval was granted from the Sheriff's office for the research to be conducted. Eligible participants were recruited from a substance abuse rehabilitation program in a low-security county jail in a mid-sized southern city. Announcements were made at the jail, and sign-up sheets were left for

interested participants to sign up to volunteer for the research project. After obtaining informed consent from the participants they were interviewed privately at the jail in the Mental Health Ward.

### *Plan of Analyses*

Preliminary Chi-square and t-test analyses were performed to examine the main effects of developmental differences in the incarceration-related risk factors, and mediating and moderating variables. To test the hypotheses of interest, Chi-square and t-test analyses were performed for parents' reports of their school-age and adolescent children to examine whether the incarceration-related risk factors or proposed mediating and moderating variables differed significantly based on the gender of the child or incarcerated parent. In addition, MANOVA analyses were performed to examine the main effects of and interactions among the gender of the incarcerated parent and gender of the child on the outcome variables (e.g., Externalizing Behaviors CBCL T-score, delinquency behavior score). Once the main effects of child and parent gender were examined, correlation and t-test analyses were performed among each of the variables included in the proposed mediation and moderation models to examine the relations between the variables (please refer to Figures 1 and 2). Hierarchical regression analyses, based on Baron and Kenny's techniques (1986), were performed to test the proposed mediation and moderation models.

## Results

### *Preliminary Analyses*

*Age differences.* Chi-square and t-test analyses revealed one significant difference in incarceration-related risk factors, emotion dysregulation, school problems, delinquency

behavior scores, and Externalizing Behaviors CBCL T-scores based on the age of the child. Incarcerated parents of adolescent children reported significantly higher school problem scores ( $M = 1.06$ ,  $SD = 1.22$ ) than parents of school-age children ( $M = .59$ ,  $SD = .94$ ),  $t(39) = -2.17$ ,  $p < .05$ ,  $d = .43$ . As seen in Table 1, there were no significant differences in the percentage of school-age and adolescent children experiencing the incarceration-related risk factors (i.e., witnessing parental criminal activity, sentencing, and criminal activity). Although there were no overall effects of age, the pattern of relations may differ based on the child's age and thus separate analyses were conducted for parents' reports of school age and adolescent children. In the following sections, analyses are presented for parents' reports of their school-age children, followed by the same analyses for adolescent children.

#### *School-Age Children of Incarcerated Parents*

*Gender differences.* Chi-square and t-test analyses performed on the incarceration-related risk factors and mediation and moderation variables revealed one significant difference in the school-age children based on the child's gender. Parents reported that their male school-age children experienced significantly higher Externalizing Behavior CBCL T-scores ( $M = 63.79$ ,  $SD = 7.72$ ) than female school-age children ( $M = 56.44$ ,  $SD = 7.79$ ),  $t(40) = 3.04$ ,  $p < .01$ ,  $d = .95$ . Therefore, in the current study, school-age boys with incarcerated parents may be at greater risk than girls of negative outcomes, such as externalizing behaviors.

Chi-square and t-test analyses revealed just one significant difference in the school-age group of children based on the gender of the incarcerated parent. Incarcerated mothers were significantly more likely to report that their school-age children had been

present for their sentencing (9 %) than incarcerated fathers (1.8%;  $\chi^2 = 4.3$ ,  $df = 1$ ,  $p < .05$ ,  $\eta^2 = .09$ ). Based on this finding, school-age children experiencing maternal incarceration may be at heightened risk of incarceration-related selection effects (e.g., witnessing maternal sentencing).

MANOVA analyses showed no significant parent by child gender interactions. Thus, the MANOVA results support the decision to combine the reports of incarcerated mothers and fathers of their school-age sons and daughters in the subsequent analyses.

*Pearson product moment correlations.* Pearson product moment correlations among parent-reports of their school-age children's emotion dysregulation, school problems, and Externalizing Behavior CBCL T-scores are presented in Table 2. Significant correlations were observed among several of the variables. Based on parents' reports of school-age children, school problems were associated with greater emotion dysregulation and Externalizing Behavior CBCL T-scores.

*T-test analyses.* T-test analyses revealed one significant difference in the school-age group based on whether parents reported that the child witnessed their criminal activity, arrest, and/or sentencing. Parents who reported their school-age children witnessed their sentencing reported that their child experienced more school problems,  $t(47) = 13.46$ ,  $p < .01$ ,  $d = .97$ . A marginally significant difference in Externalizing CBCL T-scores was observed in the school-age group based on whether the child witnessed their sentencing,  $t(38) = -1.93$ ,  $p = .061$ ,  $d = .73$ . Parents who reported their school-age children witnessed their sentencing reported higher levels of Externalizing CBCL T-scores.

*Mediated relations between incarceration-related risk factors and child*

*outcomes.* Correlation analyses revealed that parents' reports of their school-age children witnessing their sentencing was marginally positively correlated with Externalizing Behavior CBCL T-scores ( $r = .30, p = .06$ ; Path  $A_0$ ; see Table 3 and Figure 3), such that witnessing parental sentencing was associated with greater parent-reported Externalizing Behavior CBCL T-scores. A t-test also revealed a marginally significant difference in Externalizing CBCL T-scores based on whether the parent-reported that their child witnessed his or her sentencing,  $t(38) = -1.934, p = .061, d = .73$ . Witnessing parental sentencing was also positively correlated with parent reported school problems ( $r = .42, p < .05$ ; Path B); that is, witnessing parental sentencing was associated with greater parent-reported school problems. Hierarchical regression analyses showed that before school problems are accounted for, witnessing parental sentencing predicted parent-reported Externalizing Behavior CBCL T-scores ( $B = 7.13, p = .06, \Delta R^2 = .09$ ; Path  $A_0$ ). However, when the mediating variable (i.e., school problems) is accounted for, the relation between witnessing parental sentencing and Externalizing Behavior T-scores is no longer significant ( $B = -.22, p = .95$ ; Path  $A_1$ ), whereas school problems does significantly predict Externalizing Behavior CBCL T-scores ( $B = 5.85, p < .001, \Delta R^2 = .37, f^2 = .70$ ; Path C). As seen in Figure 3, these results suggest that according to parent-reports, the relation between children witnessing parental sentencing and Externalizing Behavior CBCL T-Scores is partially mediated by the presence of parent-reported school problems.

*Moderated relations between incarceration-related risk factors and child*

*outcomes.* Correlation analyses did not support a moderation relation between

incarceration-related risk factors and child outcomes in school-age children in the current study.

*Adolescent children of incarcerated parents.*

*Gender differences.* Chi-square and t-test analyses examining the incarceration-related risk factors, and proposed mediation and moderation variables, revealed no significant differences in the adolescent children based on the child's gender.

Chi-square and t-test analyses examining the incarceration-related risk factors, and proposed mediation and moderation variables revealed no significant difference in the adolescent group of children based on the gender of the incarcerated parent. Although these analyses revealed no significant differences based on parental gender, a notable trend was observed. A chi-square analysis revealed that incarcerated fathers (28.5%) were more likely to report that their adolescent children had witnessed their arrest than incarcerated mothers (15.4%;  $\chi^2 = 3.52$ ,  $df = 1$ ,  $p = .06$ ,  $\eta^2 = .07$ ). Based on this finding, adolescents experiencing paternal incarceration may be at heightened risk of incarceration-related selection effects (e.g., witnessing paternal arrest).

MANOVA analyses showed no significant parent by child gender interactions. Thus, the MANOVA results support the decision to combine the reports of incarcerated mothers and fathers of their adolescent sons and daughters in the subsequent analyses.

*Pearson product moment correlations.* Pearson product moment correlations among emotion dysregulation, school problems, Externalizing Behavior CBCL T-scores, and delinquency behavior scores are presented in Table 4. Based on parents' reports of their adolescent children, school problems were associated with greater Externalizing Behavior CBCL T-scores and delinquency behavior scores; emotion dysregulation was

associated with greater Externalizing Behavior CBCL T-scores and delinquency behavior scores; also, Externalizing Behavior CBCL T-scores were associated with greater delinquency behavior scores.

*T-test analyses.* T-tests analyses revealed that there were two significant differences in the adolescent group based on whether the adolescent witnessed parental criminal activity, arrest, or sentencing. Parents' reports of whether their adolescent children witnessed their sentencing were associated with greater delinquency behaviors scores,  $t(44) = 5.05, p < .01, d = 1.43$ . Parents' reports of if their adolescent children witnessed their criminal activity were associated with greater Externalizing T-scores,  $t(43) = 2.96, p < .05, d = .73$ .

*Mediated relations between incarceration-related risk factors and child outcomes.* Correlation and regression analyses did not support a mediation relation between incarceration-related risk factors and child outcomes in adolescents in the current study.

*Moderated relations between incarceration-related risk factors and child outcomes.* The final set of analyses was conducted to examine the moderation model. The correlation and t-test analyses suggest that perhaps school problems and emotion dysregulation moderated the relation between the experience of incarceration-related risk factors and child outcomes (i.e., Externalizing Behavior CBCL T-scores, delinquency behavior scores). To test this hypothesis, the incarceration-related risk factors and moderating factors were mean centered by computing z-scores, and the interaction terms were calculated by computing the products of the centered incarceration-related risk factors and moderating factors. A series of hierarchical regression analyses assessed the

incremental predictive utility of the interaction terms. The results demonstrated the following two significant findings.

The first finding was that parents' reports of their adolescent's school problems significantly predicted Externalizing Behavior CBCL T-scores,  $\beta = .502, p < .01$ , and the witnessing parental arrest  $\times$  school problems interaction term significantly predicted Externalizing Behavior CBCL T-scores,  $\beta = .46, p < .05, \Delta R^2 = .14, f^2 = .16$  (see Table 5). Therefore, the results support the hypothesis that the presence of school problems moderates the relation between witnessing parental arrest and externalizing behaviors in adolescents with incarcerated parents (see Figure 4). Adolescents, who witnessed parental arrest and experienced more school problems, had higher average Externalizing Behavior CBCL T-scores than adolescents who experienced fewer school problems. In addition, adolescents who did not experience parental arrest reported similar Externalizing Behavior CBCL T-scores regardless of the number of parent-reported school problems.

The second finding in regard to moderated relations was that emotion dysregulation significantly predicted delinquency behaviors,  $\beta = .461, p < .01$ , and the witnessing parental criminal activity  $\times$  emotion dysregulation interaction term significantly predicted delinquency behaviors,  $\beta = .54, p < .01, \Delta R^2 = .26, f^2 = .35$  (see Table 6). Therefore, the results support the hypothesis that emotion dysregulation moderates the relation between witnessing parental criminal activity and delinquency behavior in adolescents with incarcerated parents (see Figure 5). For adolescents who had witnessed parental criminal activity, high emotion dysregulation was associated with greater parent-reported delinquency behavior scores.



## Discussion

The current study aimed to disentangle the direct effects of parental incarceration from selection effects, and moderating and mediating processes. The analysis of moderation and mediation processes revealed four key findings. First, across both age groups, there were few child- or parent- gender differences and no child by parent gender interactions. Second, for parents of school-age children, the relation between witnessing parental sentencing and Externalizing Behavior CBCL T-Scores was partially mediated by the presence of school problems. Third, the presence of school problems moderated the relation between witnessing parental arrest and Externalizing Behavior CBCL T-scores for adolescent children with incarcerated parents. Fourth, emotion dysregulation moderated the relation between witnessing parental criminal activity and delinquency behaviors for adolescent children with incarcerated parents. In the following sections, these findings are interpreted, examined from a developmental perspective, and related to intervention implications.

### *School-Age Children of Incarcerated Parents*

To examine possible developmental differences in the mechanisms of moderation and mediation, analyses for the current study were conducted separately for school-age and adolescent children. Although the results did not support a moderation relation between incarceration-related risk factors and child outcomes in school-age children, a significant mediation model was supported. The results indicated that according to parents' reports, the relation between children witnessing parental sentencing and Externalizing Behavior CBCL T-Scores was partially mediated by the presence of parent-reported school problems. Witnessing parental sentencing was associated with more

school problems, which in turn was associated with higher Externalizing Behavior CBCL T-Scores. As suggested by Murray (2005), the current study demonstrates that mediating variables (i.e., school problems) help explain the relations between the predictor (i.e., witnessing parental sentencing) and outcome variables (i.e., externalizing behaviors) in school-age children of incarcerated parents.

Based on the analyses assessing parental gender differences in children's experience of incarceration-related risk factors, incarcerated mothers were significantly more likely than fathers to report that their school-age children had witnessed their sentencing. This is likely because incarcerated mothers are more likely to be involved in their children's lives prior to incarceration than incarcerated fathers (Mumola, 2000). Therefore, maternal incarceration may have more detrimental effects on school-age children's lives because it is associated with a significantly higher occurrence of risk factors, such as witnessing maternal sentencing. Because of this heightened level of risk, the role of school problems as a mediating variable in the relation between witnessing parental sentencing and Externalizing Behavior CBCL T-scores may be more pronounced in school-age children with incarcerated mothers. For example, school-age children with pre-existing school problems may be at greater risk of externalizing behaviors if they are experiencing maternal incarceration because of the additional risk factors associated with maternal incarceration. The findings suggest that, in addition to the presence of pre-existing school problems, school-age children with incarcerated mothers may be at heightened risk of externalizing behaviors because of the high occurrence of witnessing maternal sentencing.

Although past research has found evidence that children with incarcerated parents are at increased risk of school failure and school related problems (e.g., Murray & Farrington, 2005; Myers et al., 1999; Simmons, 2000), the current study further explored whether or not children's school problems intensify the experience of incarceration-related risk factors in these children. By establishing school problems as a mediating variable that affects the relation between witnessing parental sentencing and externalizing behaviors, the current study has identified that the presence of school problems may be a risk factor in children of incarcerated parents because, in the current study, higher levels of school problems appeared to be associated with heightened negative effects of witnessing parental sentencing. These results suggest that children with preexisting school problems, like a learning-disability or being held back a grade, may be at especially high risk for behavior problems if they witnessed parental sentencing. Perhaps children with school-related problems who witness parental sentencing need additional support to deal with the emotional trauma. School-related programs should be an area of focus for individuals assisting children with incarcerated parents and should be further explored as areas of intervention.

#### *Adolescent Children of Incarcerated Parents*

In adolescent children of incarcerated parents, the results supported the hypothesis that the presence of school problems moderates the relation between witnessing parental arrest and Externalizing Behavior CBCL T-scores such that the relation between witnessing parental arrest and Externalizing Behavior CBCL T-scores significantly differed based on the parent-reported level of school problems. The role of school problems as a protective and risk factor is complex. When adolescents' parents reported

that they witnessed their arrest, the presence of low school problems functioned as a protective factor, which resulted in adolescents exhibiting lower Externalizing Behavior CBCL T-scores. However, adolescents who did not witness parental arrest received similar parent-reported Externalizing Behavior CBCL T-scores, regardless of their level of school problems. Although the current study supports past research that school problems are a major area of concern for children of incarcerated parents (e.g., Murray & Farrington, 2005; Myers et al., 1999; Simmons, 2000), additional research is necessary to fully understand its role in moderating the relation between witnessing parental arrest and delinquency behaviors.

Preliminary analyses demonstrated that incarcerated fathers were significantly more likely to report that their adolescent children had witnessed their arrest than incarcerated mothers. Because witnessing parental arrest is a traumatic event that has been associated with reoccurring nightmares and a distrust of law enforcement (Jose-Kampfner, 1995; Miller, 2006; Sack & Seidler, 1978), children with incarcerated fathers may be at heightened risk of maladjustment because of the higher occurrence of this incarceration-related risk factor. Therefore, witnessing paternal arrest may function as a selection effect that exacerbates the influence of school problems in the relation between incarceration-related risk factors and delinquency. Because of the heightened risk of witnessing paternal arrest, the presence of pre-existing school problems in adolescent children with incarcerated fathers may have more detrimental effects as a risk factor than in adolescents with incarcerated mothers.

The results also indicated that emotion dysregulation moderated the relation between witnessing parental criminal activity and delinquency behavior in adolescent

children with incarcerated parents. In adolescents who witnessed parental criminal activity, high emotion dysregulation was associated with greater parent-reported delinquency behavior scores. However, adolescents who witnessed parental criminal activity and had low parent-reported emotion dysregulation received similar parent-reports of delinquency to those adolescents who had not witnessed parental criminal activity. Thus, it appears as though emotion dysregulation can serve as both a risk and protective factor for adolescent children with incarcerated parents, supporting research that has been conducted on emotion dysregulation in high risk populations of children (Schultz et al., 2001). The current study made vital strides in this area because past research had not yet examined the role of emotion dysregulation in children of incarcerated parents. Because the presence of emotion dysregulation affected the level of delinquency scores in adolescents who witnessed parental criminal activity, the current study suggests that emotion dysregulation is both a risk and protective factor in adolescents with incarcerated parents.

#### *Developmental Differences in the Mechanisms of Moderation and Mediation*

The findings of the current study revealed that there were different moderation and mediation mechanisms in the relation between experiencing incarceration-related risk factors and maladjustment in the school-age and adolescent age groups. The current project supported Myers and colleagues' (1999) claim that the impact of parental incarceration depends on the child's developmental stage. The differences observed in the mediated and moderated mechanisms, as well as adolescents' heightened levels of school problems, may be due to a number of factors.

First, school-age children and adolescents are at different milestones in the development of emotion regulation. Adolescents are better able to regulate their emotions and begin to make their emotion regulation decisions based on particular consequences they expect (Zeman & Garber, 1996). In the current study it is possible that emotion dysregulation functioned as a risk factor in adolescents because they are emotionally more developed than school-age children and emotion dysregulation is less acceptable in adolescents. Emotion dysregulation may place adolescents at greater risk because it is less tolerable in adolescent children, therefore causing greater stress.

Second, adolescents are in the process of developing self-identity and autonomy, as well as developing new peer groups (Johnston, 1995). This places adolescents at increased risk of joining delinquent peer groups and therefore at heightened risk of school problems, stealing, lying, and violence. The heightened level of school problems observed in adolescents in the current study may be due to this increased risk of delinquent peer groups and behaviors.

Third, the higher levels of school problems observed in adolescents may also be due to greater amounts of exposure to traumatic events over their longer lifetimes. Consequently, risks factors (e.g., multiple previous parental incarcerations, school transitions) may have accumulated (Phillips & Harm, 1997).

Fourth, the types and frequency of incarceration-related risk factors in the current study may have affected the results. Witnessing parental criminal activity is more likely to be a reoccurring traumatic event than witnessing parental sentencing or arrest. In addition, although witnessing parental sentencing is a stressful event for children or adolescents, it occurs in a more controlled and safe setting (i.e., courtroom) than

witnessing parental criminal activity or arrest. This may explain why witnessing parental sentencing is associated with increased risk of behavior problems in adolescents with preexisting school problems, but not in adolescents without school problems. Because of the safer nature of witnessing parental sentencing, adolescents may only be at heightened risk for behavior problems in the presence of additional stressors, such as parent-reported school problems. In the current study, the frequency of the incarceration-related risk factors differed based on the gender of the incarcerated parent, suggesting that parental gender may be a selection effect that affects the relation between incarceration-related risk factors and child outcomes.

Although different moderating and mediating variables were observed in school-age and adolescent children, no significant differences were observed in the frequency of incarcerated-related risk factors like witnessing parental criminal activity, arrest, or sentencing based on child age. It is possible that significant differences would have been observed had the current sample included children younger than six years old because Johnston (1991) suggests that half of the children that witness maternal arrest are less than seven years old. Future research should consider including children not yet school-age. The percentages of children and adolescents experiencing these incarceration-related risk factors in the current study were consistent with past research. For example, Johnston (1991) suggested that one in five children is present to witness maternal arrest. In the current study, 26% of school-age children and adolescent children witnessed parental arrest. Based on the current findings, although school-age and adolescent children of incarcerated parents experienced incarceration-related risk factors at the same rate,

different mechanisms were observed in the relation between incarceration-related risk factors and outcomes.

By conducting separate analyses for parents' reports of their school-age and adolescent children, the current study identified that developmental differences do exist in how children respond to parental incarceration. However, to further understand the role of the child's age, future research should implement longitudinal designs which utilize multiple reporters of children's risks and outcomes as well as multiple measures. Such longitudinal studies would lend themselves to more complex latent variable modeling analytic techniques. In addition, longitudinal designs would allow researchers to better evaluate the effects of parental incarceration across the lifespan. Though the results of the current cross-sectional design suggest there are developmental differences, other factors (e.g., cohort effects) could be accounting for the differences observed. By implementing longitudinal research designs, researchers would be able to examine these more complex chains of relations and could better identify the role of age.

Past research, such as Murray (2005), Kinner et al., (2007), and Myers et al. (1999), has suggested that the gender of the child and incarcerated parent affect the level of maladjustment observed in the child. However, in the current study, the only significant difference in child adjustment based on parent or child gender was incarcerated parents of school-age boys reported significantly higher levels of externalizing behaviors than school-age girls. This finding supports past research, such as Kinner and colleagues (2007), that suggests that parental incarceration has more detrimental effects on boys than girls. Although the current study did not support the claim that maternal incarceration places children at greater risk of negative outcomes than



paternal incarceration, significant differences were observed in incarceration-related risk factors. The results suggest that incarcerated mothers were significantly more likely to report their school-age children witnessed their sentencing and incarcerated fathers were significantly more likely to report their adolescent children witnessed their arrest.

Therefore, the gender of the incarcerated parent may act as a selection effect because of the significant differences in the occurrence of incarceration-related risk factors prior to parental incarceration. Future research should include incarcerated mothers and fathers, as well as boys and girls, to further explore the child by parent gender interaction effects.

### *Implications for Intervention*

Children and adolescents with incarcerated parents are one of the most underserved at-risk populations (Miller, 2006). The growing awareness about the detrimental effects of incarceration on children has led to an increase in research and interventions. For example, President Bush has recently funded a mentoring program for children with incarcerated parents (MENTOR, 2008). However, additional research is needed to better understand the role of developmental stages, as well as specific risk and protective factors, in alleviating the impact of parental incarceration (Miller, 2006; Murray, 2005; Myers et al., 1999).

Researchers have successfully identified the generalized consequences, or direct effects, of parental incarceration (e.g., future incarceration, externalizing behaviors). However, further research is necessary to better understand differences in adjustment based on child gender and age, as well as parent gender. The results of the current study suggest that the relation between experiencing incarceration-related risk factors and negative outcomes (i.e., externalizing behaviors, delinquent behaviors) is partially

determined by the presence or absence of factors, such as emotion dysregulation and school problems. If future research further explores these relations, public programs, such as President Bush's mentoring program, may be able to assist these children by focusing on improving their emotion regulation skills or offering additional school assistance.

"Roots of Empathy" is a school-based program in Canada, for children in kindergarten to eighth grade, which reduces aggression by increasing social and emotional competence (Roots of Empathy, 2006). Although the children in the program are not experiencing parental incarceration, similar intervention programs could be implemented for children of incarcerated parents.

In addition to exploring the role of risk and protective factors (e.g., emotion dysregulation), the current study supported different moderating and mediating processes for school-age and adolescent children of incarcerated parents. By establishing accurate moderation and mediation models, researchers could identify possible protective factors that may decrease the risk of negative outcomes in children and adolescents of inmates.

The current study has several important strengths. First, both incarcerated mothers and fathers were interviewed. This is a significant strength because most research in this area has failed to include both mothers and fathers. In addition, the results of the current study dispute past research and suggest there are no significant differences in child adjustment based on parent gender. However, additional research is necessary to further explore this finding. Second, the sample was fairly diverse with participants varying in age, marital status, ethnicity, number of children, history of drug and alcohol use, and number of previous incarcerations. Third, the emotion dysregulation and delinquency behavior measures have well-documented reliability and validity, and the CBCL measure

is age and gender sensitive, and has been standardized and validated with both clinical and non-clinical samples.

There are several limitations which suggest avenues for future research. First, the data collected during this study was solely based on parent-report. Because the parents are incarcerated and removed from the family, many may not report accurate information regarding their children or their children's adjustment. Future research should obtain caregiver and child reports in addition to the reports of the incarcerated parents. Second, the participants answered questions regarding incarceration-related risk factors, emotion dysregulation, school problems, externalizing behaviors and delinquency behaviors during the same interview. Therefore, it is impossible to infer the order of causation. By obtaining multiple reports across multiple time points, future research could obtain more reliable measures of child adjustment and better understand the relations of the variables over time. Third, the incarcerated parents included in the current study were participating in a substance abuse rehabilitation program and may have been more motivated to discuss their children because of their participation in the rehabilitation groups; therefore the participants may not be representative of all inmates. Fourth, the current study examined developmental and gender differences, thus future research should consider examining racial differences in the effects of parental incarceration on children.

In conclusion, the current study presented support for examining moderation and mediation mechanisms to further explain the effects of incarceration-related risk factors in children and adolescents affected by parental incarceration. The goal of the present study was to disentangle selection effects from direct effects of parental incarceration and attend to the role of children's age and other factors which may affect the relation

between risks and outcomes. Many of the results confirmed past research (e.g., Myers et al., 1999) suggesting there may be developmental differences in how children cope with parental incarceration; furthermore, many of the results expanded on past research by included incarcerated mother and fathers, and boys and girls, as well as school-age and adolescent children. In addition, the current study examined the role of possible mediating and moderating processes in the outcomes of children of incarcerated parents. The results support school problems and emotion dysregulation as factors that affect the relation between incarceration-related risk factors and child outcomes. By examining factors, such as child gender, the current study differentiated the direct effects of parental incarceration from selection effects and moderating and mediating processes to better understand the effects of parental incarceration on children's well-being.

Table 1

*Number and Percentage of School-Age and Adolescent Children Experiencing Incarceration-Related Risk Factors*

	School-Age Children ( <i>n</i> = 57)	Adolescent Children ( <i>n</i> = 53)
	% ( <i>n</i> )	% ( <i>n</i> )
Witnessed Parental Criminal Activity		
Yes	35.1% (20)	37.7% (20)
No	63.2% (36)	58.5% (31)
Missing	1.8% (1)	3.8% (2)
Witnessed Parental Arrest		
Yes	26.3% (15)	26.4% (14)
No	71.9% (41)	71.7% (41)
Missing	1.8% (1)	1.9% (1)
Witnessed Parental Sentencing		
Yes	10.5% (6)	11.3% (6)
No	86.0% (49)	84.9% (45)
Missing	3.5% (2)	1.9% (1)

Table 2

*Pearson Product Moment Correlations Among School Problems, Emotion Dysregulation, and Externalizing Behaviors T-Scores for School-Age Children*

	1	2	3	M	SD	Range
1. School Problems	-			0.59	0.94	0 - 4
2. Emotion Dysregulation	.39**	-		95.07	11.16	70 - 129
3. Externalizing Behavior CBCL T-Scores	.69**	.45**	-	60.64	8.49	44 - 86

Note. CBCL = Child Behavioral Check List Externalizing Subscale Score based on parent-report.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 3

*Hierarchical Regression Analysis: School Problems Mediates the Relation Between Witnessing Parental Sentencing and Externalizing Behavior CBCL T-Scores in School-Age Children*

	<i>B</i>	<i>SE (B)</i>	$\beta$
Step 1			
Witnessing Parental Sentencing	7.13	3.69	.30 <sup>a</sup>
Step 2			
Witnessing Parental Sentencing	-.23	3.21	-.01
School Problems	5.85	1.15	.69**

*Note.*  $R^2 = .090$  for Step 1;  $\Delta R^2 = .374$  for Step 2 ( $p < .001$ ).

<sup>a</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ .

Table 4

*Pearson Product Moment Correlations Among School Problems, Emotion Dysregulation, Externalizing Behavior CBCL T-Scores, and Delinquency Behavior Scores for Adolescents*

	1	2	3	4	M	SD	Range
1. School Problems	-				1.06	1.22	0 - 5
2. Emotion Dysregulation	.25	-			91.84	11.83	67 - 123
3. Externalizing Behavior CBCL T-Scores	.46*	.55**	-		60.61	12.69	34 - 89
4. Delinquency	.74**	.50*	.64**	-	1.89	2.57	0 - 9

Note. CBCL = Child Behavioral Check List Externalizing Subscale Score based on parent-report.

\*  $p < .05$ . \*\*  $p < .01$ .



Table 5

*Hierarchical Regression Analysis: School Problems Moderates the Relation between Witnessing Parental Arrest and Externalizing Behaviors T-Scores in Adolescents*

	<i>B</i>	<i>SE (B)</i>	$\beta$
Step 1			
Witnessing Parental Arrest	-1.55	1.92	-.13
School Problems	6.31	1.99	.50**
Step 2			
Witnessing Parental Arrest	-1.75	1.77	-.14
School Problems	2.65	2.28	.21
Witnessing Parental Arrest X School Problems	4.56	1.70	.47*

*Note.*  $R^2 = .228$  for Step 1;  $\Delta R^2 = .138$  for Step 2 ( $p < .05$ ).

\*  $p < .05$ . \*\*  $p < .01$ .

Table 6

*Hierarchical Regression Analysis: Emotion Dysregulation Moderates the Relation between Witnessing Parental Criminal Activity and Delinquency Behavior Scores in Adolescents*

	<i>B</i>	<i>SE (B)</i>	$\beta$
Step 1			
Witnessing Parental Criminal Activity	.52	.44	.22
Emotion Dysregulation	1.11	.46	.46*
Step 2			
Witnessing Parental Criminal Activity	.27	.37	.12
Emotion Dysregulation	1.52	.39	.63**
Witnessing Parental Criminal Activity x Emotion Dysregulation	1.44	.42	.54**

*Note.*  $R^2 = .312$  for Step 1;  $\Delta R^2 = .261$  for Step 2 ( $p < .01$ ).

\*  $p < .05$ . \*\*  $p < .01$ .

## Figure Captions

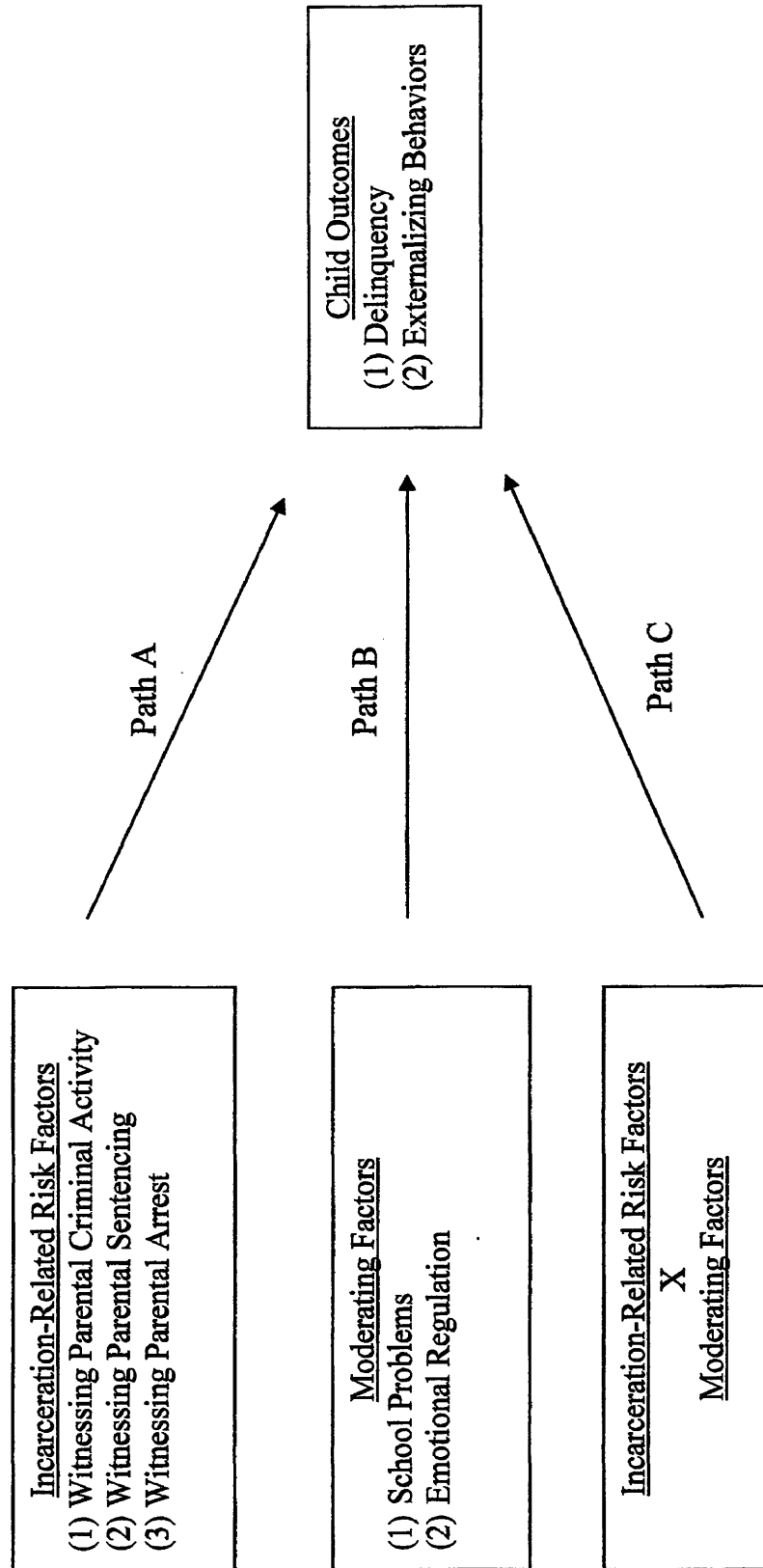
*Figure 1.* A proposed moderation model: The relations between incarceration-related risk factors and child outcomes.

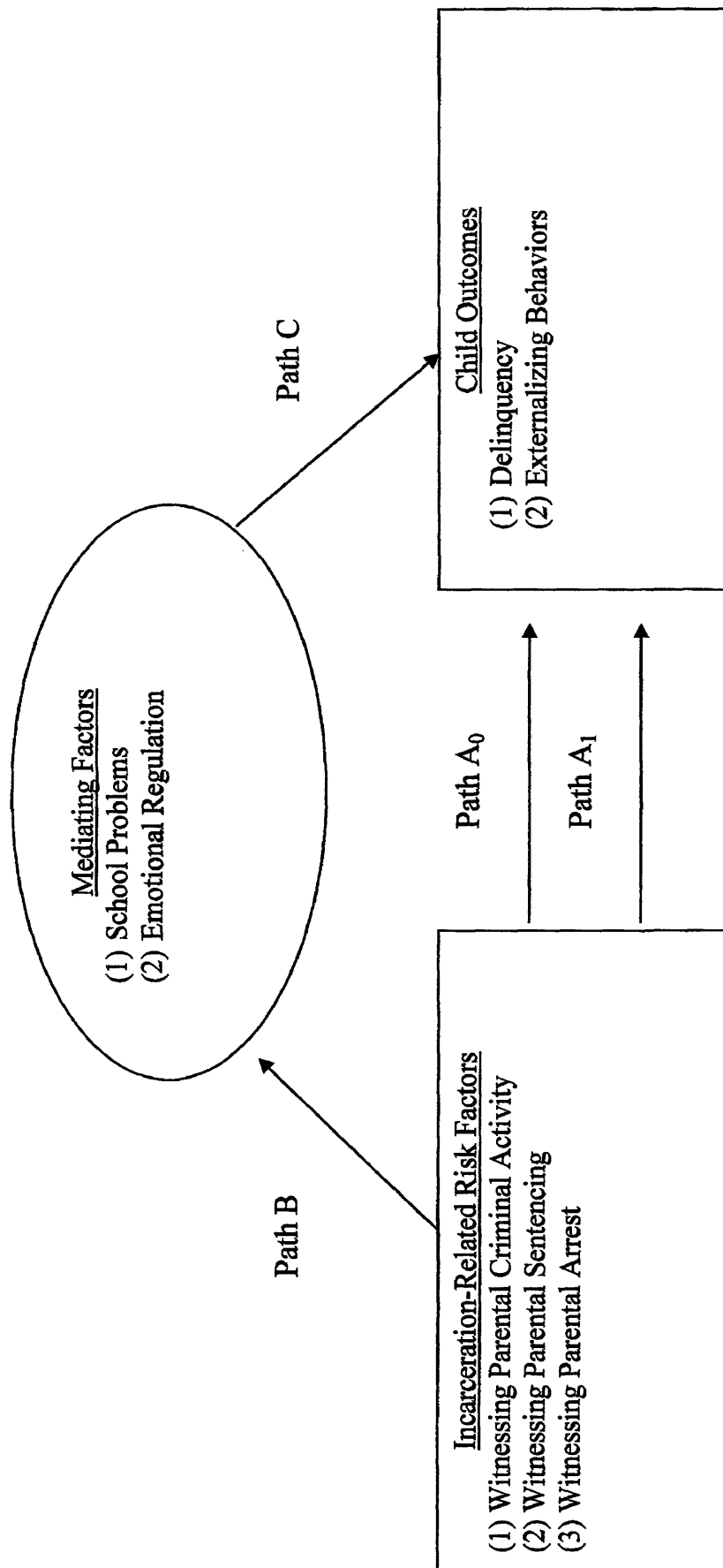
*Figure 2.* A proposed mediation model: The relations between incarceration-related risk factors and child outcomes.

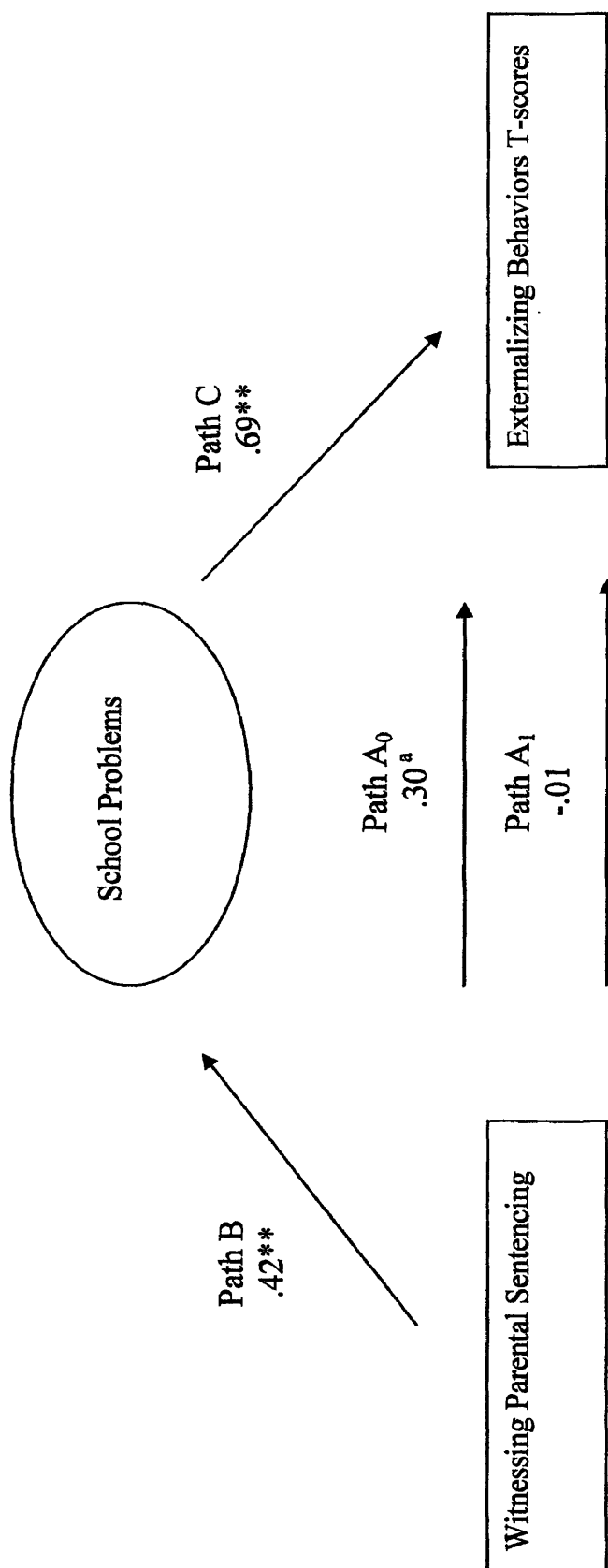
*Figure 3.* Depiction of mediating effect of school problems on the relations between witnessing parental criminal activity and Externalizing Behavior T-scores in school-age children.

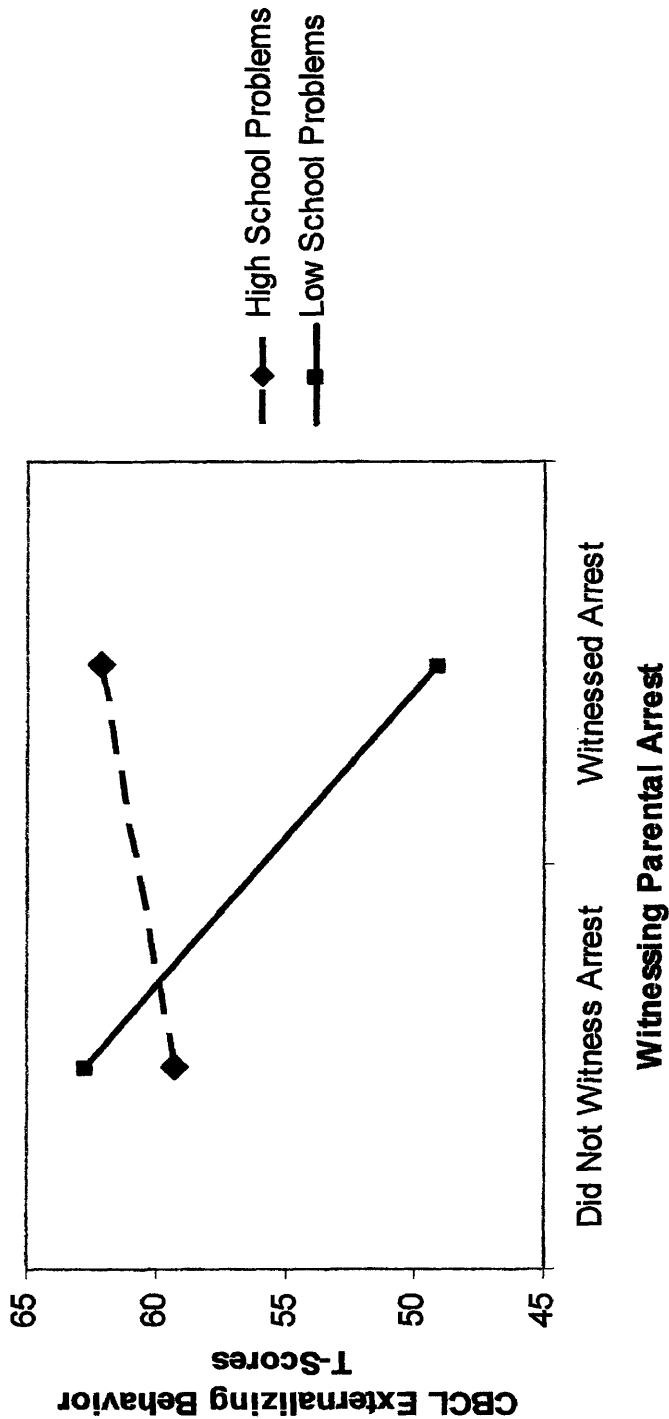
*Figure 4.* Depiction of the moderating effect of school problems on the relations between witnessing parental arrest and Externalizing Behavior T-scores.

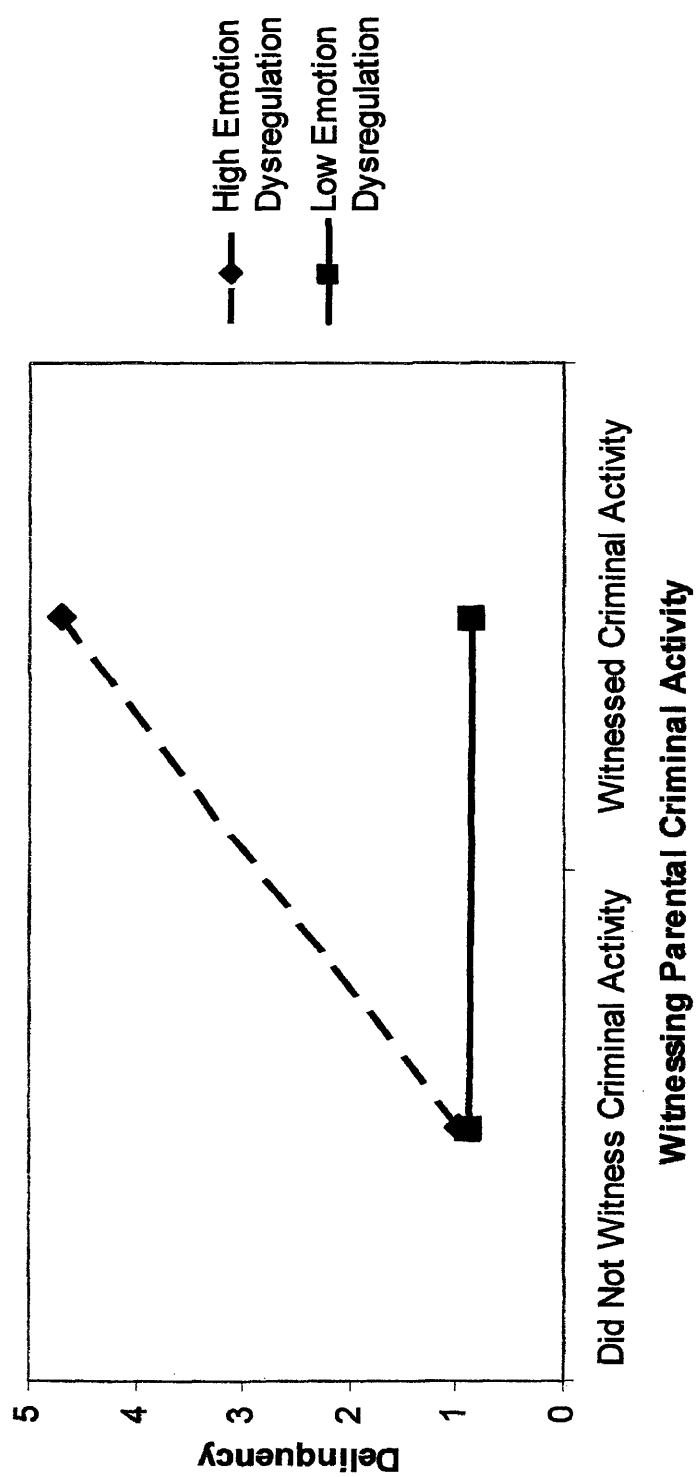
*Figure 5.* Depiction of the moderating effect of emotion dysregulation on the relations between witnessing parental criminal activity and delinquency behavior scores in school-age children.













**Appendix A**

**Please circle the most appropriate response to the following questions.**

- |  |     |    |
|--|-----|----|
| 1. Did your child witness your arrest?                 | YES | NO |
| 2. Did your child witness your sentencing?             | YES | NO |
| 3. Did your child ever witness your criminal activity? | YES | NO |

## Appendix B

*During the last 3 months that you lived with your child, please rate how true each statement was. Please make your ratings on a scale from 1 – 5 with 1 being not at all true of my child and 5 being very true of my child.*

- |   |       |
|---|-------|
| a. My child was happy very often  | _____ |
| b. When my child felt sad, the sad feelings were very strong                  | _____ |
| c. My child was in control of how often s/he felt mad                         | _____ |
| d. My child was excited almost all of the time                                | _____ |
| e. When my child felt scared, the scared feelings were very powerful          | _____ |
| f. When my child felt happy, s/he could control or change how happy s/he felt | _____ |
| g. My child was sad very often  | _____ |
| h. When my child felt mad, the mad feelings were very strong                  | _____ |
| i. My child was in control of how often s/he felt excited                     | _____ |
| j. My child was scared almost all of the time                                 | _____ |
| k. When my child felt happy, the happy feelings were very powerful            | _____ |
| l. When my child felt sad, s/he could control or change how sad s/he felt     | _____ |
| m. My child was mad very often  | _____ |
| n. When my child was excited, the excited feelings were very strong           | _____ |
| o. My child was in control of how often s/he felt scared                      | _____ |
| p. My child was happy almost all of the time                                  | _____ |
| q. When my child felt sad, the sad feelings were very powerful                | _____ |
| r. When my child felt mad, s/he could control or change how mad s/he felt     | _____ |
| s. My child was excited very often  | _____ |
| t. When my child felt scared, the scared feelings were very strong            | _____ |
| u. My child was in control of how happy s/he felt                             | _____ |
| v. My child was sad almost all of the time                                    | _____ |
| w. When my child felt mad, the mad feelings were very powerful                | _____ |
| x. When my child felt excited, s/he could control how excited s/he was        | _____ |
| y. My child was scared very often   | _____ |
| z. When my child felt happy, the happy feelings were very strong              | _____ |
| aa. My child was in control of how often s/he felt sad                        | _____ |
| bb. My child was mad almost all of the time                                   | _____ |
| cc. When my child felt excited, the excited feelings were very powerful       | _____ |
| dd. When my child felt scared, s/he could control how scared s/he was         | _____ |

**Appendix C*****Regarding your child's school work...***

- a. Has your child ever been held back a grade level? \_\_\_\_\_
- b. Been suspended from school? \_\_\_\_\_
- c. Been expelled from school? \_\_\_\_\_
- d. Does your child suffer from a diagnosed learning disability? \_\_\_\_\_
- e. What kind of grades Does s/he get - mostly A's, B's, C's or D's ? \_\_\_\_\_

## Appendix D

*The next set of questions includes items that describe children and youths. For each item that describes your child now or within the past 6 months, please tell us how true the item is. If the item is very true or often true of your child please rate it a 2. Rate the item a 1 if it is somewhat or sometimes true of your child. If the item is not true of your child, please rate it a 0. Please answer all items as well as you can, even if some do not seem to apply to your child.*

- |  |       |
|--|-------|
| a. Drinks alcohol without parents' approval              | _____ |
| b. Argues a lot  | _____ |
| c. Cruel to animals                                      | _____ |
| d. Cruelty, bullying, or meanness to others              | _____ |
| e. Demands a lot of attention                            | _____ |
| f. Destroys his/her own things                           | _____ |
| g. Destroys things belonging to his/her family or others | _____ |
| h. Disobedient at home                                   | _____ |
| i. Disobedient at school                                 | _____ |
| j. Doesn't get along with other kids                     | _____ |
| k. Doesn't seem to feel guilty after misbehaving         | _____ |
| l. Breaks rules at home, school, or elsewhere            | _____ |
| m. Gets in many fights                                   | _____ |
| n. Hangs around with others who get into trouble         | _____ |
| o. Lying or cheating                                     | _____ |
| p. Physically attacks people                             | _____ |
| q. Prefers being with older kids                         | _____ |
| r. Runs away from home                                   | _____ |
| s. Screams a lot   | _____ |
| t. Set fires   | _____ |
| u. Sexual problems                                       | _____ |
| v. Steals at home  | _____ |
| w. Steals outside of home                                | _____ |
| x. Stubborn, sullen, or irritable                        | _____ |
| y. Sudden changes in mood or feelings                    | _____ |
| z. Sulks a lot   | _____ |
| aa. Suspicious   | _____ |
| bb. Swearing or Obscene language                         | _____ |
| cc. Teases a lot   | _____ |
| dd. Temper tantrums or hot temper                        | _____ |
| ee. Thinks about sex too much                            | _____ |
| ff. Threatens people                                     | _____ |
| gg. Smokes, chews, or sniffs tobacco                     | _____ |
| hh. Truancy, skips school                                | _____ |
| ii. Unusually loud                                       | _____ |
| jj. Uses drugs for non-medical purposes                  | _____ |
| kk. Vandalism  | _____ |

## Appendix E

***In the last 30 days, please indicate how often your young adult or teen child has...***

**0 = Never   1 = Once   2 = Twice   3 = Three times   4 = four times   5 = Five times   6 = six or more times**

- a. Eaten at a fast food restaurant \_\_\_\_\_
- b. Drank only 1 or 2 alcoholic beverages in one setting (i.e., an evening) \_\_\_\_\_
- c. Drank only 3 or 4 alcoholic beverages in one setting (i.e., an evening) \_\_\_\_\_
- d. Drank 5 or more alcoholic beverages in one setting (i.e., an evening) \_\_\_\_\_
- e. Engaged in sexual behaviors, but NOT intercourse (i.e., heavy petting) \_\_\_\_\_
- f. Used cocaine or methamphetamines (i.e., crystal meth) \_\_\_\_\_
- g. Had sexual intercourse without using protection (i.e., condom) \_\_\_\_\_
- h. Ran away from home \_\_\_\_\_
- i. Smoked Marijuana \_\_\_\_\_
- j. Wore a seatbelt while riding in a car \_\_\_\_\_
- k. Used heroin \_\_\_\_\_
- l. Had sexual intercourse \_\_\_\_\_
- m. Skipped School \_\_\_\_\_
- n. Used Ecstasy \_\_\_\_\_
- o. Smoked less than 10 cigarettes in one day \_\_\_\_\_
- p. Smoked more than 10 cigarettes in one day \_\_\_\_\_
- q. Smoked Crack \_\_\_\_\_
- r. Arrived late to school \_\_\_\_\_

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### Vita

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